

Remarks

Claims 1-6, 12-13 have been rejected under 35 USC 103(a) over Suzuki (EP 0 790 143 A1) in view of Kawamura (EP 0 335 588 A2). Suzuki's invention, whose essential features are described in his claim 1, relates to a full-width band of low elastic modulus cords accompanied by edge bands of high elastic modulus cords. The Examiner has admitted on page 3 of the Office Action that Suzuki does not disclose the essential feature of the instant invention (i.e. cords having a ratio τ of the tensile strength at high strain and high temperature to the tensile strength at low strain and moderate temperatures inferior to 1.5.). However, the Examiner contends that Kawamura (Sumitomo) discloses such a ratio. A careful reading of Kawamura shows that his invention involves a set of circumferential cords having an essential bi-modulus characteristic to solve the problem of elasticity during the curing stage of the manufacturing process of the tire, a known problem for tire having high modulus circumferential cords. Referring to Kawamura's Figure 4, one sees that the cord disclosed therein has a low elastic modulus at low strain and a higher elastic modulus at higher strain. This cord is used in the various embodiments disclosed in Kawamura's Figure 5. Both Suzuki and Kawamura are silent with regard to the tensile behavior of the cords at high temperatures.

In stark contrast, the Applicant discloses a tire having a first and a second circumferential reinforcement, the first circumferential of high elastic modulus at high stress, AND a second circumferential reinforcement whose tensile strength at high strain and high temperature tends to decrease relative to the tensile strength at low strain an moderate temperature. This ensures that the effect of the second crown reinforcement at high speed, i.e. at high temperature and stress is really negligible compared to the rigidity of the first crown reinforcement. This effect is further demonstrated at paragraph 80 of the application as published where it is disclosed that the difference is further increased by the different behavior of the nylon and PET cords with temperature. These curves are obtained at 20 Celsius degrees. At high temperatures, such as the temperatures reached in very high speed running conditions, these cords have an important diminution of their modulus of elasticity at high (and low) stresses. On the contrary, the aramid cords encounter a much lower decrease.

None of the cited references provide any motivation or teaching to cause a tire designer to investigate the cord properties at elevated temperatures and strains as required in the instant invention. Therefore, the Examiner's assertion of obviousness cannot be supported through the cited references.


Claims 14-19 have been rejected under 35 USC 103(a) over Suzuki (EP 0 790 143 A1) in view of Kawamura (EP 0 335 588 A2), and further in view of Kojima et al (US 5,032,198). As to claims 18-19, the specification of the tensile forces developed at the specified strains and temperatures is a further description of

the required cord behavior disclosed and claimed in Applicant's claim 1. As discussed previously, Suzuki and Kawamura are silent on this aspect of the invention, and the same is true for Kojima. Kojima recites a method of manufacturing a tire containing circumferential cords (the band) without any specificity as the cord property requirements. Kojima limits his disclosure to the generic properties of nylon, Kevlar and the like (See, for example, column 7, lines 21-39). The Examiner's assertions on page 5 of the Office Action that these relationships are a matter of obvious design preference are wholly unsupported by any of the cited references. The Applicant respectfully disagrees, particularly in view of the absence of any support, motivation, or teaching in the cited references, that the relationships described in claims 18-19 are part of the ordinary design process of a high performance tire. The Applicant must then ask the Examiner to offer specific proof of his assertion.

In view of the foregoing remarks, the Applicant believes that claims 1-29 are in condition for allowance, either as a result of the remarks set forth herein applied to the particular claim or as a claim dependent on a now allowable claim. Among the elected claims drawn to the invention of Group A, the Applicant believes that Claims 1-4 and 14-29 are currently generic. Claims 7-11, previously withdrawn, depend on an allowable generic claim. Therefore, the Examiner is requested to withdraw the restriction/election requirement as claims 7-11 properly depend on an allowable generic claim.

If the Examiner has any questions, please contact the Applicant's attorney as indicated below.

Respectfully submitted,



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